NO L# DEFINED

• => d acc ab (5117126)

US. PAT NO:

5,117,126 [IMAGE AVAILABLE]

ANS: 1

ABSTRACT:

A stacked OPO is disclosed wherein two or more optically nonlinear media, such as crystals, are coaxilly disposed in a single resonator. Incident radiation is coupled into the resonator, and causes parametric oscillations of the two crystals. The two crystals are independently tuned, such as by angular orientation, to produce distinct components of secondary radiation. A first one of the crystals is disposed nearer to the source of incident radiation, and a second one of the crystals is disposed nearer to the output coupler of the resonator. This causes the first crystal to experience a greater effective gain. Furthermore, the secondary radiation from the first crystal will tend to dominate and "seed" the secondary radiation from the 23 OCT 92 10:59:34

U.S. Patent & Trademark Office

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1 second crystal, when their bandwidths are narrowly separated. The dominance of the first crystal is controlled in various ways: 1) by shortening the length of the first crystal, 2) by differential bevelling of the first crystal with respect to the optical axis of the resonator, or 3) by detuning the output coupling mirror of the resonator with respect to the output of the first crystal. Either method effectively balances the effective gains of the two crystals so that two, independently tunable and efficient signal frequencies can be achieved. Seeding the OPO stack is also disclosed. Alternate techniques of seeding include the use of a tunable diode laser, a second low power OPO and a second OPO using a Faraday Anomalous Dispersion Optical Filter (FADOF). Techniques for angle tuning the OPO stack and compensating for walkoff are disclosed.

=> d acc kwic 5117126 23 OCT 92 11:00:17 'KWIC' IS NOT A VALID FORMAT ENTED DISCUSS FORMAT (CIT).

U.S. Patent & Trademark Office

PØØØ5

ENTER DISPLAY FORMAT (CIT):

1. 5,117,126, May 26, 1992, Stacked optical parametric oscillator; Allen R. Geiger, 359/330; 307/424; 359/328; 372/21, 22 [IMAGE AVAILABLE]

=> log y

U.S. Patent & Trademark Office LOGOFF AT 11:00:40 ON 23 OCT 92

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

CLMS (38)

38. A method of preventing damage to skin by **marketing sept.** comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .

CLAIMS:

CLMS (40)

40. A method of treating damage to skin by merawicke light comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . . 23 OCT 92 10:54:19 U.S. Patent & Trademark Office P0046

US PAT NO:

5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

LiØ: 1 of 1

CLMS (4Ø)

CLAIMS:

CLMS (42)

42. A method of retarding damage to skin by **measurement legis** which comprises applying a topical composition to the skin containing at least about 1% ascorbic acid (w/v) in water and. . .

=> d ab 15 48

US PAT NO: 4,177,202

L5: 48 of 72

23 OCT 92 10:55:07 U.S. Patent & Trademark Office

PØØ47

US PAT NO:

4,177,202

L5: 48 of 72

ABSTRACT:

Light gases rich in methane and ethane are produced from synthesis gas by contacting a CO reducing component of molybdena alone or in combination with an element selected from the group consisting of cobalt and vanadium distributed on a support of alumina or silica/alumina. The presence of hydrogen sulfide in the syngas feed enhances the activity and selectivity for the catalysts to produce ethane rich light gases.

=> d ab 15 71

US PAT NO:

3,617,936

L5: 71 of 72

ABSTRACT:

A singly resonant **princal maxametric oscillator** (SRO) is pumped 23 OCT 92 10:55:34 U.S. Patent & Trademark Office

PØØ48

US PAT NO: 3,617,936

L5: 71 of 72

by a high power, pulsed source and is tuned approximately to a predetermined desired frequency. Radiation of that frequency is injected into a mode of the SRO from a stabilized, low-power injection source. The output of the SRO is a pulsed, high-power signal with frequency equal to the predetermined frequency to a high degree of accuracy.

=> log y

```
(FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)
               SET PAGELENGTH 19
               SET LINELENGTH 78
             Ø S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L. 1
L2.
           49 S OPTICAL PARAMETRIC OSCILLATOR
          302 S (L2 OR METHANE(W) CONVERSION)
13
            Ø S L2 AND METHANE CONVERSION
L4
L5
            72 S (L2 OR ETHANE(W) PRODUCTION)
             Ø S L2 AND ETHANE PRODUCTION
L6
L7
             2 S L2 AND 204*?/CCLS
             2 S L5 AND 204*?/CCLS
L.8
            Ø S ETHANE PRODUCTION USING LASER
L9
             1 S ETHANE PRODUCTION AND ULTRAVIOLET(W) LIGHT
L1Ø
                           U.S. Patent & Trademark Office
                                                                   FØØ42
23 OCT 92 10:53:19
=> d ab 110 1
US PAT NO: 5,140,043 [IMAGE AVAILABLE]
                                                   L10: 1 of 1
ABSTRACT:
Stable topical aqueous compositions are provided containing a concentration
of L-ascorbic acid above about 1% (W/V) and maintaining a pH below about 3.5.
=> d kwic 110
US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1
SUMMARY:
BSUM(3)
                           U.S. Patent & Trademark Office
                                                                    PØØ43
PØ: 857592 10:53:57
US PAT NO: 5,140,043 [IMAGE AVAILABLE]
                                                   L10: 1 of 1
BSUM(3)
L-ascorbic . . . and Tappel, "The Effect of Vitamin C on in vivo Lipid
Peroxidation in Guinea Pigs as Measured by Pentane and
Rassas, Lipids
SUMMARY:
BSUM (18)
     . . that about 2.5. Such a composition appears to allow ready
penetration into the skin and retards the damage caused by magazinal
PØØ44
23 OCT 92 10:54:04
                           U.S. Patent & Trademark Office
US PAT NO: 5,140,043 CIMAGE AVAILABLEI L10: 1 of 1
BSUM (18)
CLAIMS:
CLMS(32)
32. A method of retarding damage to skin by ultraviolet light which
comprises applying a topical composition on the skin consisting essentially
of at least about 1% ascorbic acid (w/v) in. .
CLAIMS:
CLMS(38)
```

U.S. Patent % Trademark Office

TB: F6T042 10:54:11

PØØ45

CLMS(11)

IG: 601352 10:50:41

U.S. Patent & Trademark Office

PØØ37

US PAT NO: 4,433,193

L5: 35 of 72

CLMS (11)

11. The process of claim 1, wherein the residence time in the reaction zone is less than 1 second.

CLMS (12)

12. The process of claim 1, wherein the aromatic hydrocarbon is preheated to a temperature of at least 1100.degree. F. before introduction to the reactor zone.

CLMS(13)

-13. The process of claim 12 wherein the hydrogen is preheated to at least 1100.degree. F. before introduction to the reactor zone. 23 OCT 92 10:50:49 U.S. Patent & Trademark Office PØØ38

US PAT NO:

4,433,193

L5: 35 of 72

CLMS(13)

CLMS(14)

14. The process of claim 13, wherein the hydrogen is admixed with the aromatic hydrocarbon in the reactor zone.

CLMS (15)

15. The process of claim 1, wherein the feedstock hydrocarbon comprises non-alkylated aromatics.

CLMS (16)

20:001492 10:50:56

U.S. Patent & Trademark Office

PØØ39

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(16)

16. The process of claim 1 comprising the further step of producing a portion of the hydrogen from methane produced in the hydrogasification reaction.

CLMS (17)

17. The process of claim 1 further comprising the step of producing a portion of the hydrogen from the polyaromatics produced in the hydrogasification reaction.

== `>

US PAT NO: L5: 35 of 72 4,433,193

CLMS(1)

- (c) discharging the resultant ethane-containing reaction product from said
- (d) immediately cooling said product.

CLMS(2)

2. The process of claim 1, wherein the reactor zone comprises a fluidized bed of inert solids.

CLMS(3)

3. The process of claim 1, wherein the feedstock hydrocarbons are at least 40 mole percent aromatic.

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U.S. Patent & Trademark Office

PØØ34

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(3)

CLMS(4)

4. The process of claim 1 comprising the further step of adding methane to the hydrogen.

CLMS(5)

5. The process of claim 1 comprising the further step of adding methane to the hydrogen in the hydrogenating gas in amounts in the order of about 25 molar percent to about 75 molar percent based on the total amount of hydrogen.

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U.S. Patent & Trademark Office

PØØ35

US PAT NO: 4,433,193

L5: 35 of 72

CLM5(6)

6. The process of claim 1, wherein the reaction zone is essentially isothermal.

CLMS(7)

7. The process of claim 1, wherein the feedstock in the reaction zone is heated essentially exclusively through heat of reaction of said feedstock.

CLMS(8)

8. The process of claim 1, wherein the residence time is less than about 3 seconds.

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U.S. Patent & Trademark Office

PØØ36

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(8)

CLMS(9)

9. The process of claim 1 , wherein the temperature in the reaction zone is between 1200.degree. and 1500.degree. F.

CLMS (10)

10. The process of claim 1, wherein the pressure in the reaction zone is hetween 500 to 2000 psia.

3,617,764 [IMAGE AVAILABLE] US FAT NO: TITLE:

FAR INFRARED WAVE GENERATOR OR MIXER

=> d ab 15 35

US PAT NO:

L.5: 35 of 72

L5: 72 of 72

ABSTRACT:

An improved process for producing ethane from aromatic hydrocarbons is described. Hydrogen and the hydrocarbons are introduced into a catalytically inert reactor zone and are reacted under closely controlled conditions which provide an enhanced yield of ethane.

23 OCT 92 10:49:08

U.S. Patent & Trademark Office

PØØ3Ø

US PAT NO:

4,433,193

L5: 35 of 72

=> d kwic 15 35

US PAT NO:

4,433,193

L5: 35 of 72

DETDESC:

DETD(4)

An . . both the feedstock employed and in the manner in which the reaction is carried out. In accordance with this invention, EXPRESS execoncing is maximized with an accompanying and unexpected decrease in in coking. Moreover, this is accomplished without the need of a. . 23 OCT 92 10:49:34 U.S. Patent & Trademark Office

PØØ31

US PAT NO:

4,433,193

L5: 35 of 72

DETD(4)

DETDESC:

DETD (38)

These results show the markedly increasing selectivity of EMDERIC **Proceedings** encountered at shorter residence times in accordance with the process.

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US PAT NO: 4,433,193 L5: 35 of 72

23 OCT 92 10:50:04

U.S. Patent & Trademark Office

PØØ32

US PAT NO:

4,433,193

L5: 35 of 72

CLAIMS:

CLMS(1)

We claim:

- 1. A process for the production of ethane comprising:
- (a) introducing a feedstock comprising mainly aromatic hydrocarbons and hydrogen into a non-catalytic reactor zone, the amount of hydrogen being between 1 and 4 times the stoichiometric requirement to convert all carbon in said feedstock into methane;
- . (b) reacting said feedstock at a temperature between 1100.degree. and 160% degree. F. and pressure between 30% and 250% psia for less than 24%seconds;

23 OCT 92 10:50:13

U.S. Patent & Trademark Office

3,984,190 L5: 55 of 72 US PAT NO: TITLE: Simultaneous transmission of periodic spectral components by plural interferometric means L5: 56 of 72 3,982,207 US PAT NO: Quantum effects in heterostructure lasers TITLE: 3,934,210 [IMAGE AVAILABLE] L5: 57 of 72 US PAT NO: Tuning apparatus for an optical oscillator TITLE: 3,914,618 [IMAGE AVAILABLE] US PAT NO: U.S. Patent & Trademark Office PØØ26 23 OCT 92 10:47:42 3,914.618 [IMAGE AVAILABLE] L5: 58 of 72 US PAT NO: TWO-PHOTON PUMPED FREQUENCY CONVERTER AND METHOD TITLE: L5: 59 of 72 US PAT NO: 3,907,920 TITLE: Two-stage hydropyrolysis-cracking process for producing ethylene L5: 60 of 72 US PAT NO: 3,843,258 DUAL BEAM ABSORPTION TYPE OPTICAL SPECTROMETER TITLE: 3,792,287 CIMAGE AVAILABLEI US PAT NO: L5: 61 of 72 NON-LINEAR OPTICAL CRYSTAL AND DEVICES TITLE: 3,719,411 CIMAGE AVAILABLET L5: 62 of 72 US PAT NO: U.S. Patent & Trademark Office PØØ27 23 OCT 92 10:47:52 L5: 62 of 72 US PAT NO: 3,719,411 [IMAGE AVAILABLE] CONTINUOUS COUPLING OF TUNABLE OR BROAD BAND RADIATION INTO TITLES THIN FILM WAVEGUIDES 3,697,888 [IMAGE AVAILABLE] L5: 63 of 72 US PAT NO: EVANESCENT WAVE COUPLING TECHNIQUE FOR BEAM SHAPING TITLE: L5: 64 of 72 3,697,185 US PAT NO: METHOD AND APPARATUS FOR THE TIME SHARING OF MULTIPLE CHANNEL TITLE: ANALYSIS MEANS 3,675,039 CIMAGE AVAILABLE] L5: 65 of 72 US PAT NO: COHERENT OFFICAL DEVICES EMPLOYING ZINC GERMANIUM PHOSPHIDE TITLE: L5: 66 of 72 US PAT NO: 3,662,183 U.S. Patent & Trademark Office PØØ28 23 OCT 92 10:48:03 L5: 66 of 72 US PAT NO: 3,662,183 CONTINUOUSLY TUNABLE DESPRESA PARTITIONS OF SHIP TO THE PROPERTY OF SHIP TO TH TITLE: 3,655,993 CIMAGE AVAILABLEI L5: 67 of 72 US PAT NO: OPTICALLY ROTATORY DIELECTRIC-GUIDED PARAMETRIC OSCILLATORS TITLE: L5: 68 of 72 US PAT NO: 3,654,482 TITLE: MIRRORLESS OPTICAL CAVITY 3,628,186 L5: 69 of 72 US PAT NO: TITLE: PARAMETRIC OSCILLATOR WITH NONRESONANT SIGNAL : US PAT NO: 3,628,182 CIMAGE AVAILABLE] L5: 70 of 72 RING-TYPE PARAMETRIC OSCILLATOR TITLE: U.S. Patent & Trademark Office PØØ29 23 OCT 92 10:48:13 L5: 71 of 72 US PAT NO: 3,617,936 TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY

PADIATION INJECTION

| US PAT | NO: | 4,411,520 L5: 37 of 72 Light dispersion measuring apparatus | |
|----------------------------|-----------------|---|--|
| US PAT TITLE: | NO: | 4,405,869 [IMAGE AVAILABLE] L5: 38 of 72 Optical parametrons | |
| US PAT TITLE: | NO: | 4,404,124 L5: 39 of 72 Selective hydrogenation catalyst | |
| US PAT TITLE: 23 OCT | NO: 92 10:47 | 4,394,623 [IMAGE AVAILABLE] L5: 40 of 72 Ring cavity for a raman capillary waveguide amplifier :02 U.S. Patent & Trademark Office F0022 | |
| US PAT | NO: | 4,382,660 [IMAGE AVAILABLE] L5: 41 of 72 Optical transistors and logic circuits embodying the same | |
| US PAT | NO: | 4,381,923 [IMAGE AVAILABLE] L5: 42 of 72 Isotope separation with an infrared laser | |
| US PAT | NO: | 4,349,907 [IMAGE AVAILABLE] L5: 43 of 72 Broadly tunable picosecond IR source | |
| US PAT TITLE: | NO: | 4,222,011 [IMAGE AVAILABLE] L5: 44 of 72 Stokes injected Raman capillary waveguide amplifier | |
| US PAT TITLE: 23 OCT | | 4,213,060 L5: 45 of 72 Tunable infrared source employing Raman mixing :12 U.S. Patent & Trademark Office P0023 | |
| US PAT TITLE: | NO: | 4,189,652 L5: 46 of 72 Beam splitter coupled CDSE GESSERIE EXEMPLIE | |
| US PAT TITLE: | NO: | 4,180,751 L5: 47 of 72 Mode-locked Germandschie Germannes apparatus | |
| US FAT | NO: | 4,177,202 L5: 48 of 72 Methanation of synthesis gas | |
| US PAT TITLE: | NO: | 4,157,949 Catalytic process for treating light gasoline stocks | |
| | NO: 92 10:47 | 4,146,504 L5: 50 of 72 :21 U.S. Patent & Trademark Office P0024 | |
| US PAT | NO: | 4,146,504 L5: 50 of 72 Porous powders and a method for their preparation | |
| US FAT TITLE: | NO: | 4,032,419 [IMAGE AVAILABLE] L5: 51 of 72 Method and apparatus for separating uranium isotopes | |
| US PAT | NO: | 4,012,457 Thermal cracking method for the production of ethylene and propylene in a molten metal bath | |
| US PAT TITLE: | NO: | 4,005,937 Simultaneous interferometric transmission of periodic spectral components | |
| | NO: 92 10:47 | 3,999,854 L5: 54 of 72 :32 U.S. Patent & Trademark Office P0025 | |
| US PAT TITLE: | 140# | 3,999,854 L5: 54 of 72 Simultaneous interferometric transmission of periodic spectral | |

components

```
Electro-optic line narrowing of optical parametric oscillators
 TITLE:
                                                                                                               L5: 19 of 72
                               5,026,938 [IMAGE AVAILABLE]
US FAT NO:
 TITLE:
                               Process for upgrading light apparatus
                               5,017,806 [IMAGE AVAILABLE]
                                                                                                               L5: 20 of 72
 US PAT NO:
 TITLE:
                               Broadly tunable high repetition rate femtosecond and the contraction of the contract of the co
                                   4,950,828 CIMAGE AVAILABLE]
                                                                                                               L5: 21 of 72
 US PAT NO:
                               Process for upgrading light paraffins
 TITLE:
                                                             U.S. Patent & Trademark Office
                                                                                                                                                  PØØ18
 23 OCT 92 10:46:22
 US PAT NO:
                               4,946,813 CIMAGE AVAILABLE]
                                                                                                               L5: 22 of 72
                               Catalysts for upgrading light paraffins
 TITLE:
 US PAT NO:
                               4,946,812 CIMAGE AVAILABLET
                                                                                                               L5: 23 of 72
 TITLES
                               Catalyst for upgrading light paraffins
                                                                                                               L5: 24 of 72
 US PAT NO:
                               4,891,463
                               Aromatization of aliphatics over a zeolite containing
 TITLE:
                                   framework gallium
 US PAT NO:
                               4,808,763
                                                                                                               L5: 25 of 72
                               Process for upgrading light paraffins
 TITLE:
                                                                                                               L5: 26 of 72
 US PAT NO:
                               4,806,701
 TITLE:
                               Process for upgrading light paraffins
 23 OCT 92 10:46:32
                                                            U.S. Patent & Trademark Office
                                                                                                                                                  PØØ19
                                                                                                               L5: 27 of 72
 US PAT NO:
                               4,720,453
                               Detecting environmental pollutants with protoplasts in
 TITLE:
                                   alginate matrix
 US PAT NO:
                               4,639,923 CIMAGE AVAILABLEI
                                                                                                               L5: 28 of 72
 TITLE:
                               OPARGENI Parametric osabblaton using urea crystal
                               4,629,290 CIMAGE AVAILABLE]
                                                                                                               L5: 29 of 72
 US PAT NO:
 TITLE:
                              Liquid crystal compounds and method of preparation
 US PAT NO:
                                                                                                               L5: 30 of 72
                              H 15
                               Broadband source of picosecond radiation
 TITLE:
 US PAT NO:
                               4,558,923 [IMAGE AVAILABLE]
                                                                                                               L5: 31 of 72
                                                            U.S. Patent & Trademark Office
                                                                                                                                                  PØØ2Ø
 23 OCT 92 10:46:42
 US PAT NO:
                               4,558,923 CIMAGE AVAILABLE]
                                                                                                               L5: 31 of 72
                               Picosecond bistable optical switch using two-photon
 TITLE:
                                   transitions
 US PAT NO:
                               4,493,764
                                                                                                               L5: 32 of 72
 TITLE:
                               Separately supported polymetallic reforming catalyst
 US PAT NO:
                               4,484,015
                                                                                                               L5: 33 of 72
 TITLE:
                               Selective hydrogenation
                               4,477,590
                                                                                                               L5: 34 of 72
 US PAT NO:
 TITLE:
                               Separately supported polymetallic reforming catalyst
 US PAT NO:
                                                                                                               L5: 35 of 72
 TITLE:
                               Process for the production of ethane
                                                                                                                                                  PØØ21
                                                             U.S. Patent & Trademark Office
 23 OCT 92 10:46:52
 US PAT NO:
                               4,411,755 CIMAGE AVAILABLE]
                                                                                                               L5: 36 of 72
 TITLE:
                              Laser-assisted isotope separation of tritium
```

| US PAT NO: TITLE: | 5,144,630 [IMAGE AVAILABLE] Multiwavelength solid state laser using techniques | |
|----------------------|---|--|
| US PAT NO: TITLE: | 5,144,629 [IMAGE AVAILABLE] Method and apparatus for laser tuning | L5: 2 of 72 |
| TITLE: | 5,140,043 [IMAGE AVAILABLE] Stable ascorbic acid compositions 5:40 | L5: 3 of 72 Office P0014 |
| US PAT NO: TITLE: | 5,134,622 (IMAGE AVAILABLE) Diode-pumped optical parametric occilia | |
| US PAT NO: TITLE: | 5,128,293 CIMAGE AVAILABLE1 Catalyst for upgrading light paraffins | L5: 5 of 72 |
| US FAT NO: TITLE: | 5,117,126 [IMAGE AVAILABLE] Stacked optical Parametric oscillator | L5: 6 of 72 |
| US PAT NO: TITLE: | 5,114,565 [IMAGE AVAILABLE] Reforming naphtha with boron-containing | |
| US PAT NO: TITLE: | 5,079,445 [IMAGE AVAILABLE] High output coupling cavity design for oscillators | |
| 23 OCT 92 10:4 | 5:51 U.S. Patent & Trademark (| Office PØ015 |
| US PAT NO: TITLE: | 5,070,260 (IMAGE AVAILABLE) Ultrahigh-resolution or the Earanges t frequency measurement and synthesis s | |
| US PAT NO: TITLE: | 5,066,291 [IMAGE AVAILABLE] Solid-state laser frequency conversion | L5: 10 of 72 system |
| US PAT NO: TITLE: | 5,065,046 [IMAGE AVAILABLE] Method and apparatus for parametric gene light in KNbO.sub.3 | L5: 11 of 72 eration of midinfrared |
| | 5,053,641 (IMAGE AVAILABLE) Tunable operati parementate generali | L5: 12 of 72 |
| | 5,052,806 [IMAGE AVAILABLE] 6:01 | |
| US FAT NO: TITLE: | 5,052,806 [IMAGE AVAILABLE] Apparatus for measuring non-absorptive | L5: 13 of 72 scattering |
| US PAT NO: TITLE: | 5,047,668 CIMAGE AVAILABLE] Optical walkoff compensation in critica three-wave frequency conversion system | |
| US PAT NO: TITLE: | 5,043,306 CIMAGE AVAILABLEI Catalysts for upgrading light paraffins | L5: 15 of 72 |
| US PAT NO: TITLE: | 5,034,951 [IMAGE AVAILABLE] Femtosecond ultraviolet laser using ult borate | L5: 16 of 72 ra-thin beta barium |
| | 5,033,057 [IMAGE AVAILABLE] 6:12 U.S. Patent & Trademark (| |
| | 5,033,057 [IMAGE AVAILABLE] Pump steering mirror cavity | L5: 17 of 72 |
| US PAT NO: | 5.028.816 [IMAGE AVAILABLE] | L5; 18 of 79 |

One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTO from sources such as a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2

23 OCT 92 10:44:37 U.S. Patent & Trademark Office FØ011

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2

ABSTRACT:

A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules. The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path 23 OCT 92 10:44:50 U.S. Patent & Trademark Office PØØ12

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2 tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

::::: `>

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L7: 1 of 2

· ABSTRACT:

Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase. One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTO from sources such as 23 OCT 92 10:42:54

U.S. Patent & Trademark Office P0007

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L7: 1 of 2 a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

L7: 2 of 2

ABSTRACT:

A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238 23 OCT 92 10:43:07

U.S. Patent & Trademark Office

P0008

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules. The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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(FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)
23 OCT 92 10:43:31
                             U.S. Patent & Trademark Office
                                                                        PØØØ9
                SET PAGELENGTH 19
                SET LINELENGTH 78
L. 1
             Ø S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2
            49 S OPTICAL PARAMETRIC OSCILLATOR
L3
           302 S (L2 OR METHANE(W) CONVERSION)
1.4
             Ø S L2 AND METHANE CONVERSION
L.5
            72 S (L2 OR ETHANE(W) PRODUCTION)
             Ø S L2 AND ETHANE PRODUCTION
L.6
1.7
              2 S L2 AND 204*?/CCLS
=> s 15 and 204*?/ccls
```

=> d ab 18 1-2

39104 204*?/CCLS

U.S. Patent & Trademark Office

PØØ1Ø

23 OCT 92 10:44:26

US PAT NO: 4,411,755 [IMAGE AVAILABLE]

(204/?/CCLS)

2 L5 AND 204*?/CCLS

L8: 1 of 2

ABSTRACT:

L.8

Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase.

=> d acc ab(5117126)

US PAT NO: . 5,117,126 [IMAGE AVAILABLE]

ANS: 1

ABSTRACT:

A stacked GPO is disclosed wherein two or more optically nonlinear media, such as crystals, are coexilly disposed in a single resonator. Incident radiation is coupled into the resonator, and causes parametric oscillations of the two crystals. The two crystals are independently tuned, such as by angular orientation, to produce distinct components of secondary radiation. A first one of the crystals is disposed nearer to the source of incident radiation, and a second one of the crystals is disposed nearer to the output coupler of the resonator. This causes the first crystal to experience a greater effective gain. Furthermore, the secondary radiation from the crystal will tend to dominate and "seed" the secondary radiation from the 13 OCT 92 10:59:34

U.S. Patent & Trademark Office

US FAT.ND: 75,117,126 [IMAGE AVAILABLE] ANS: 1 second crystal, when their bandwidths are narrowly separated. The dominance of the first crystal is controlled in various ways: 1) by shortening the length of the first crystal, 2) by differential bevelling of the first crystal with respect to the optical axis of the resonator. or 3) by detuning the output coupling mirror of the resonator with respect to the output of the first crystal. Either method effectively balances the effective gains of the two crystals so that two, independently tunable and efficient signal frequencies can be achieved. Seeding the OPO stack is also disclosed. Alternate techniques of seeding include the use of a tunable diode laser, a second low power OPO and a second OPO using a Faraday Anomalous Dispersion Optical Filter (FADOF). Techniques for angle tuning the OPO stack and compensating for walkoff are disclosed.

=> d acc kwic 5117126 23 GCT 92 11:00:17 'KWIC' IS NOT A VALID FORMAT ENTER DISPLAY FORMAT (CIT):

U.S. Patent & Trademark Office

FØØØ5

1. 5,117,126, May 26, 1992, Stacked optical parametric oscillator; Allen R. Geiger, 359/330: 307/424; 359/328; 372/21, 22 [IMAGE AVAILABLE]

=> log y U.S. Patent & Trademark Office LOGOFF AT 11:00:40 ON 23 OCT 92

1.10: 1 of 1

US PAT-NG: 5,140,843 [IMAGE AVAILABLE]

CLMS (38)

36. A method of preventing demage to skin by **The State of Mane** comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .

CLAIMS:

CLMS (40)

40. A method of treating damage to skin by **The Wester Stella** comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . . .

23 OCT 92 10:54:19

U.S. Patent % Trademark Office

PØØ46

US PAT NO:

5,140,043 CIMAGE AVAILABLE]

L10: 1 of 1

CLMS(4Ø)_

CLAIMS:

CLMS (42)

=> d ab 15 48

US PAT NO: 4,177,202

L5: 48 of 72

23 OCT 92 10:55:07

U.S. Patent & Trademark Office

PØØ47

US PAT NO:

4,177.202

L5; 48 of 72

ABSTRACT:

Light gases rich in methane and ethane are produced from synthesis gas by contacting a CO reducing component of molybdena alone or in combination with an element selected from the group consisting of cobalt and vanadium distributed on a support of alumina or silica/alumina. The presence of hydrogen sulfide in the syngas feed enhances the activity and selectivity for the catalysts to produce ethane rich light gases.

=> d ab 15 71

US PAT NO:

3,617,936

L5: 71 of 72

ABSTRACT:

A singly resonant **District District Description** (SRO) is pumped 23 OCT 92 10:55:34 U.S. Patent & Frademark Office

FØØ48

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US PAT NO: 3,617,936

L5: 71 of 72

by a high power, pulsed source and is tuned approximately to a predetermined desired frequency. Radiation of that frequency is injected into a mode of the SRO from a stabilized, low-power injection source. The output of the SRO is a pulsed, high-power signal with frequency equal to the predetermined frequency to a high degree of accuracy.

=> log y

蘇d ab 15 6

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SET PAGELENGTH 19
                 SET LINELENGTH 78
               -Ø S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
  1.1
  1.2
              49 S OPTICAL PARAMETRIC OSCILLATOR
             302 S (L2 OR METHANE(W) CONVERSION)
  1.3
  __ 4]·
              - Ø S L2 AND METHANE CONVERSION
 1.5
              72 S (L2 OR ETHANE(W) PRODUCTION)
  L.6
               Ø S L2 AND ETHANE PRODUCTION
 L.7
               2 S L2 AND 204*7/CCLS
               2 S L5 AND 204*?/CCLS
 1...8
               Ø 8 ETHANE PRODUCTION USING LASER
 1.9
               1 S ETHANE PRODUCTION AND ULTRAVIOLET(W) LIGHT
  L.10
                                                                         PØØ42
  23 OCT 92 10:53:19
                               U.S. Patent & Trademark Offica
  => d ab 110 1
  US FAT NO: 5,140,043 [IMAGE AVAILABLE]
                                                       L10: 1 of 1
  ABSTRACT:
  Stable topical aqueous compositions are provided containing a concentration
  of L-ascorbic acid above about 1% (W/V) and maintaining a pH below about 3.5.
  => d kwic 110
  US PAT NO: 5,140,043 [IMAGE AVAILABLE]
                                                       L10: 1 of 1
  SUMMARY:
  BSUM(3)
                                                                        PØØ43
                               U.S. Patent & Trademark Office
  20:561552 10:53:57
                                                       L1Ø: 1 of 1
  US PAT MO: 5.140,043 [IMAGE AVAILABLE]
  BSUM(3)
  L-ascorbic . . . and Tappei, "The Effect of Vitamin C on in vivo Lipid
  Peroxidation in Suinea Pigs as Measured by Pentane and Example
  Bacounson, Lipids
  SUMMARY:
  BSUM (18)
         . . that about 2:5. Such a composition appears to allow ready
  penetration into the skin and retards the damage caused by managerate
  23 OCT 92 10:54:04
                              U.S. Patent & Trademark Office
                                                                         FØØ44
               5,140,043 CIMAGE AVAILABLE]
                                                        L10: 1 of 1
  BSUM (18)
  CLAIMS:
  CLMS (32)
  32. A method of retarding damage to skin by make which
  comprises applying a topical composition on the skin consisting essentially
  of at least about 1% ascorbic acid (w/v) in. .
CLAIMS:
```

@ CLMS (38)

Contract Calling English Carlotter Commence of the Calling Commence of the Calling Cal

SLMS(14)

TG: 007352 l0:50:41

U.S. Patent & Trademark Office

F3257

US PAT NO:

4,433,193

L5: 35 of 72

CLMS(11)

11. The process of claim 1, wherein the residence time in the reaction zone is less than 1 second.

CLMS (12)

12. The process of claim 1, wherein the aromatic hydrocarbon is preheated to a temperature of at least 1100 degree. F. before introduction to the reactor zone.

CLMS(13)

13. The process of claim 12 wherein the hydrogen is preheated to at least 1100.degree. F. before introduction to the reactor zone.
23 OCT 92 10:50:49

U.S. Fatent & Trademark Office P0038

US PAT NO:

4,433.193

L5: 35 of 72

CLMS (13)

CLMS(14)

14. The process of claim 13, wherein the hydrogen is admixed with the aromatic hydrocarbon in the reactor zone.

CLMS (15)

15. The process of claim 1, wherein the feedstock hydrocarbon comprises non-alkylated aromatics.

CLMS (16)

20:501492 10:50:56

U.S. Patent & Trademark Office

PØØS9

US PAT NO:

4,433.193

L5: 35 of 72

CLMS (16)

16. The process of claim 1 comprising the further step of producing a portion of the hydrogen from methane produced in the hydrogenication reaction.

CLMS (17)

17. The process of claim 1 further comprising the step of producing a portion of the hydrogen from the polyaromatics produced in the hydrogasification reaction.

== >

CLMS(1)

(c) discharging the resultant ethane-containing reaction product from said, zone; and

(d) Immediately cooling said product.

CLMS(2)

2. The process of claim 1, wherein the reactor zone comprises a fluidized bed of inert solids.

CLMS(3)

3. The process of claim 1, wherein the feedstock hydrocarbons are at least 40 mole percent aromatic.

23 OCT 92 10:50:20

U.S. Patent & Trademark Office

P0034

US PAT NO:

4,433,193

L5: 35 of 72

CLMS(3)

CLMS(4)

4. The process of claim 1 comprising the further step of adding methane to the hydrogen.

CLMS(5)

5. The process of claim 1 comprising the further step of adding methane to the hydrogen in the hydrogenating gas in amounts in the order of about 25 molar percent to about 75 molar percent based on the total amount of hydrogen.

23 JCT 92 10:50:27

U.S. Patent & Trademark Office

PØØ35

US PAT NO:

4,433,193

L5: 35 of 72

CLMS(6)

5. The process of claim 1, wherein the reaction zone is essentially isothermal.

CLMS(7)

7. The process of claim 1, wherein the feedstock in the reaction zone is heated essentially exclusively through heat of reaction of said feedstock.

CLMS(8)

8. The process of claim 1, wherein the residence time is less than about 3 seconds.

23 OCT 92 10:50:35

- U.S. Patent & Trademark Office

P0036 '

US PAT NO:

4,433,193

L5: 35 of 72

CLMS(8)

CLMS(9)

9. The process of claim 1 , wherein the temperature in the reaction zone is between 1200.degree. and 1500.degree. F.

CLMS(10)

10. The process of claim 1, wherein the pressure in the reaction zone is

US FATEND: 3.617.744 SIMAGE AVAILABLES
TITLE: FAR INFRARED WAVE GENERATOR OR MIXER

=> d ab 15 35

US PAT NO:

4,433,193

LE: 35 of 72

U.Sa 72 59 72

ABSTRACT:

An improved process for producing athana from aromatic hydrocarbons is described. Hydrogen and the hydrocarbons are introduced into a catalytically inert reactor zone and are reacted under closely controlled conditions which provide an enhanced yield of ethane.

23 OCT 92 10:49:08

U.S. Patent & Trademark Office

PØØ3Ø

US PAT MO:

4,433,193

L5: 35 of 72

=> d kwic 15 35

US PAT NO:

~ 4,433,193

L5: 35 of 72

DETDESC:

DETD(4)

An . . . both the feedstock amployed and in the manner in which the reaction is carried out. In accordance with this invention, **Electrical** is maximized with an accompanying and unexpected decrease in 1n coking. Moreover, this is accomplished without the need of a. . . . 33 GCT 92 10:49:34 U.S. Patent & Trademark Office

P0031

US PAT NO:

4,433,193

L5: 35 of 72

DETD(4)

DETDESC:

DETD(33)

These results show the markedly increasing selectivity of **Extens 220-103-103** encountered at shorter residence times in accordance with the process.

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US FAT NO:

4,433,193

L5: 35 of 72

23 OCT 92 10:50:04

U.S. Patent & Trademark Office

P0032

US PAT NO:

4,433,193

L5: 35 of 72

CLAIMS:

CLMS(1)

We claim:

- 1. A process for the production of athane comprising:
- (a) introducing a feedstock comprising mainly aromatic hydrocarbons and hydrogen into a non-catalytic reactor zone, the amount of hydrogen being between 1 and 4 times the stoichiometric requirement to convert all carbon in said feedstock into methane;
- (b) reacting said feedstock at a temperature between 1100.degree. and 1600.degree. F. and pressure between 300 and 2500 psia for less than 240 seconds;

23 OCT 92 10:50:13

U.S. Patent & Trademark Office

LIFE ES of VO US FAT-NO: 3,984,190 Simultaneous transmission of periodic spectral components by TITLE plural interferometric means LS: 56 of 72 US PAT NO: 3,982,207 Quantum effects in heterostructure lasers TITLE: US PAT NO: 3,934,210 CIMAGE AVAILABLEI L5: 57 of 72 Tuning apparatus for an optical oscillator TITLE: L5: 58 of 72 3.914,618 CIMAGE AVAILABLEI US PAT NO: 23 OCT 92 10:47:42 U.S. Patent & Trademark Office FØØ26 3,914,618 [IMAGE AVAILABLE] L5: 58 of 72 US PAT NO: TWO-PHOTON PUMPED FREQUENCY CONVERTER AND METHOD TITLE: L5: 59 of 72 US FAT NO: 3,907,920 Two-stage hydropyrolysis-cracking process for producing TITLE: L5: 60 of 72 3,843.258 US PAT NO: DUAL BEAM ABSORPTION TYPE OPTICAL SPECTROMETER TITLE: US PAT NO: 3,792,287 CIMAGE AVAILABLES L5: 61 of 72 NON-LINEAR OPTICAL CRYSTAL AND DEVICES TITLE: 3,719,411 CIMAGE AVAILABLEI L5: 62 cf 72 US PAT NO: PØØ27 U.S. Patent & Trademark Office 23 OCT 92 10:47:52 3,719,411 CIMAGE AVAILABLE] US PAT NO: CONTINUOUS COUPLING OF TUNABLE OR BROAD BAND RADIATION INTO TITLE: THIN FILM WAVEGUIDES L5: 63 of 72 3,497.988 CIMAGE AVAILABLEI US PAT NO: EVANESCENT WAVE COUPLING TECHNIQUE FOR BEAM SHAPING TITLE: L5: 64 of 72 US PAT NO: 3,697,185 METHOD AND APPARATUS FOR THE TIME SHARING OF MULTIPLE CHANNEL TITLE: ANALYSIS MEANS 3,675,039 [IMAGE AVAILABLE] US PAT NO: L5: 65 of 72 COHERENT OFFICAL DEVICES EMPLOYING ZINC GERMANIUM PHOSPHIDE TITLE: 3,662,183 L5: 66 of 72 US PAT NO: PØØ28 . . 23 OCT 92 10:48:03 U.S. Patent & Trademark Office L5: 56 of 72 US PAT. NO: 3,662,183 TITLE: CONTINUOUSLY TUNABLE PROFINE PARAMETER DESIGNATION US PAT NO: - 3,655,993 CIMAGE AVAILABLEI L5: 67 of 72 OPTICALLY ROTATORY DIELECTRIC-GUIDED PARAMETRIC OSCILLATORS TITLE: US PAT NO: L5: 68 of 72 3,654,482 TITLE: MIRRORLESS OPTICAL CAVITY L5: 69 of 72 US PAT NO: 3,628,186 TITLE: PARAMETRIC OSCILLATOR WITH NONRESONANT SIGNAL 3,628,182 CIMAGE AVAILABLE] L5: 78 of 72 US PAT NO: RING-TYPE PARAMETRIC OSCILLATOR TITLE: FØØ29 U.S. Patent & Trademark Office 23 OCT 92 10:48:13

US PAT NO: 3,617,936 L5: 71 of 72 FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY

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 organization of the
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FITLER
               tight discersion measuring apperetus
US PAT HO:
               4,405,869 CIMAGE AVAILABLES
                                                        L5: 38 of 72
TITLE:
               Optical parametrons
US PAT NO:
               4,404.124
                                                        15: 39 of 72
TITLE:
               Selective hydrogenation hatalyst
US PAT NO:
               4,394,623 EIMAGE AVAILABLEI
                                                       L5: 40 of 72
               Ring cavity for a raman capillary waveguide amplifier
TITLE:
23 OCT 92 10:47:02
                              U.S. Patent & Trademark Office
                                                                          P0022
US PAT NO:
               4,382,660 CIMAGE AVAILABLES
                                                        L3: 41 of 72
TITLE:
               Optical transistors and logic circuits embodying the same
US PAT NO:
               4,381,923 [IMAGE AVAILABLE]
                                                        15: 42 of 72
TITLE:
               Isotope separation with an infrared laser
             ~ 4,349,907 CIMAGE AVAILABLE!
US PAT NO:
                                                        L5: 43 of 72
TITLE:
               Broadly tunable picosecond IR source
US PAT NO:
               4,222,011 CIMAGE AVAILABLE]
TITLE:
               Stokes injected Raman capillary waveguide amplifier
US PAT NO:
               4,213,060
                                                        L5: 45 of 72
TITLE:
               Tunable infrared source employing Raman mixing
23 OCT 92 10:47:12
                              U.S. Patent & Trademark Office
                                                                         P0023
US PAT NO:
               4,189,652
                                                        L5: 46 of 72
TITLES
               Beam splitter coupled CDSE and companies
                 US FAT NO:
              4,180,751
                                                        L5: 47 of 72
TITLE:
               Mode-locked June 1 Charles Designed
US PAT NO:
               4,177,202
                                                        L5: 48 of 72
               Methanation of synthesis gas
TITLE:
US PAT NO:
               4,157,949
                                                        L5: 49 of 72
TITLE:
               Catalytic process for treating light gasoline stocks
US PAT NO:
               4,146,504
                                                        L5: 50 of 72
23 OCT 92 10:47:21
                              U.S. Patent & Trademark Office
US PAT NO:
               4,146,504.
TITLE:
               Porous powders and a method for their preparation
US PAT NO:
               4,032,419 [IMAGE AVAILABLE]
                                                        L5: 51 of 72
              Method_and apparatus for separating uranium isotopes
TITLE:
US PAT NO:
               4,012,457
                                                       L5: 52 of 72
TITLE:
               Thermal cracking method for the production of ethylene and
                 propylene in a molten metal bath
US PAT NO:
              4,005,937
                                                        L5: 53 of 72
TITLE:
               Simultaneous interferometric transmission of periodic spectral
                 components
               3,999,854
US PAT NO:
                                                        L5: 54 of 72
23 OCT 92 10:47:32
                              U.S. Fatent & Trademark Office
                                                                         FØØ25
US PAT NO:
                                                        L5: 54 of 72
               3,999,854
TITLE:
               Simultaneous interferometric transmission of periodic spectral
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|---|--|---|---|---|---|----------|
| US PAT | ND: | 5,026,938 FIMAGE AVAILABLE: Process for upgrading light apparatus | 1.55 | 19 ot | 4 7 <u>7</u> 2 | <i>.</i> |
| US PAT | NO: | 5,017,806 EIMAGE AVAILABLE] Broadly tunable high repetition rate fed DESCRIPTION | L5: : | | | |
| US PAT TITLE: 23 OCT | | 4,950,828 [IMAGE AVAILABLE] Process for upgrading light paraffins 5:22 U.S. Patent & Trademark (| | | 72 | PØØ18 |
| US PAT TITLE: | NO: | 4,946,813 CIMAGE AVAILABLE: Catalysts for upgrading light paraffins | LS: | 22 oi | 72 | |
| US RAT TITLE: | NO: | 4,946,812 [IMAGE AVAILABLE] Catalyst for upgrading light paraffins | | ZJ of | 72 | |
| US PAT TITLE: | MO: | 4,891,463 Aromatization of aliphatics over a zeoli framework gallium | L5: : | | | |
| US PAT TITLE: | NO: | 4,808.763 Process for upgrading light paraffins | | 25 of | 72 | |
| US PAT | NO: | 4,806,701 | L5: 1 | - / | | |
| TIPLE: | | Process for upgrading light paraffins ::32 U.S. Patent & Trademark C | | | 7 / M. | PØØ19 |
| | 92 10:46 | Process for upgrading light paraffins ::32 U.S. Patent & Trademark C | Office L5: : | e 27 o i | : 72 | PØØ19 |
| 23 OCT US PAT | 92 10:46 No: | Process for upgrading light paraffins::32 U.S. Patent & Trademark C 4,720,453 Detecting environmental pollutants with alginate matrix | Dffice L5: 1 prote | = 27 o+ oplas 28 o÷ | : 72 :ts in | PØØ19 |
| 23 OCT US PAT TITLE: | 92 10:46 NO: NO: | Process for upgrading light paraffins ::32 U.S. Patent & Trademark C 4,720,453 Detecting environmental pollutants with alginate matrix 4,639,923 [IMAGE AVAILABLE] | L5: 1 proto L5: 1 crys | e 27 of polas 28 of stal 29 of | : 72 :ts in : 72 : 72 | PØØ19 |
| US PAT TITLE: US PAT TITLE: | 92 10:46 NO: NO: NO: | Process for upgrading light paraffins 32 U.S. Patent & Trademark C 4,720,453 Detecting environmental pollutants with alginate matrix 4,639,923 [IMAGE AVAILABLE] STATEM ESTEMBLES DEADLES Liquid crystal compounds and method of p | L5: 1 proto L5: 1 L5: 1 L5: 2 L5: 3 L5: 3 | e 27 of pplas 28 of stal 29 of catic | : 72 :ts in : 72 : 72 | PØØ19 |
| US PAT TITLE: US PAT TITLE: US PAT TITLE: US PAT | 92 10:46 NO: NO: NO: | Process for upgrading light paraffins 32 U.S. Patent & Trademark C 4,720,453 Detecting environmental pollutants with alginate matrix 4,639,923 [IMAGE AVAILABLE] PROCESS for upgrading light paraffins 4,639,453 Liquid crystal compounds and method of p H 15 Broadband source of picosecond radiation 4,558,923 [IMAGE AVAILABLE] | L5: 1 L5: 1 L5: 1 L5: 1 L5: 1 L5: 1 | e 27 of 28 of 37 of 30 of | : 72 :ts in : 72 : 72 :n | PØØ19 |
| US PAT TITLE: US PAT TITLE: US PAT TITLE: US PAT | 92 10:46 NO: | Process for upgrading light paraffins 2:32 U.S. Patent & Trademark C 4,720,453 Detecting environmental pollutants with alginate matrix 4,639,923 [IMAGE AVAILABLE] 4,629,290 [IMAGE AVAILABLE] Liquid crystal compounds and method of p H 15 Broadband source of picosecond radiation 4,558,923 [IMAGE AVAILABLE] 2:42 U.S. Patent & Trademark C | L5: 3 L5: 3 L5: 3 L5: 3 L5: 3 L5: 3 | e 27 of pplas 28 of stal 29 of atic 30 of 31 of | 72 sts in 72 72 72 72 | |
| US PAT TITLE: US PAT TITLE: | 92 10:46 NO: NO: NO: NO: NO: NO: NO: NO: NO: | Process for upgrading light paraffins 2:32 U.S. Patent & Trademark C 4,720,453 Detecting environmental pollutants with alginate matrix 4,637,923 [IMAGE AVAILABLE] 4,627,290 [IMAGE AVAILABLE] Liquid crystal compounds and method of p H 15 Broadband source of picosecond radiation 4,558,923 [IMAGE AVAILABLE] 2:42 U.S. Patent & Trademark C 4,558,923-[IMAGE AVAILABLE] Picosecond bistable optical switch using transitions | L5: 3 | 27 of oplas 28 of stal 29 of atic 30 of 31 of 52 of | : 72 :ts in : 72 : 72 : 72 : 72 : 72 :on | |

TITLE: Frocess for the production of ethane
23 OCT 92 10:46:52 U.S. Patent & Trademark Office P0021

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L5: 36 of 72

% TITLE: Laser-assisted isotope separation of tritium

Separately supported polymetallic reforming catalyst

L5: 34 of 72

L5: 35 of 72

US PAT NO:

US PAT NO:

TITLE:

4,477,590

4,433,193

| TITLE: | | t, ite id: 1900 sym (abl.) Multiwavelength solid state laser using techniques | ld: Fræque | ency | onversion |
|------------------|-----------------|---|-------------------|--------------|---------------|
| US PAT TITLE: | | 5,144,629 (IMAGE AVAILABLE) Method and apparatus for laser tuning | L5: 2 | of 7 | 2 4 |
| TITLE | | 5,140,043 CIMAGE AVAILABLE] Stable ascorbic acid compositions 5:40 U.S. Patent & Trademark (| L5: 3 Office | | 2 PØØ14 |
| US PAT | | 5,134,622 [IMAGE AVAILABLE] Diode-pumped Diagram Carments Diagram | L5: 4 | of 7 | 2 |
| US PAT | NO: | 5,128,273 CIMAGE AVAILABLE: Catalyst for upgrading light paraffins | L5: 5 | of 7 | 2 |
| US FAT | NO: | 5,117,126 CIMAGE AVAILABLEI Stacked Green Champage George Com | LS: á | of 7 | 2 |
| US PAT | | 5,114,565 [[MAGE AVAILABLE] Reforming naphtha with poron-containing | L5: 7 large- | of 7 Pore | 2 zeolites |
| US PAT TITLE: | | 5,079,445 [TMAGE AVAILABLE] High output coupling cavity design for coscillators | | | |
| 25 OCT | 92 10:45 | 5:51 U.S. Fatent & Trademark C | Office | | P0015 |
| US FAT | NO: | 5,070.260 [IMAGE AVAILABLE] Ultrahigh-resolution organization frequency reasurement and synthesis sy | | | |
| US FAT | NO: | 5,866,291 [IMAGE AVAILABLE] Solid-state Paser frequency conversion s | | of | 7.2 |
| US PAT | | 5,045,046 (IMAGE AVAILABLE) Method and apparatus for parametric generalight in KMbO.sub.3 | | | |
| US PAT | | 5,053,641 (IMAGE AVATLABLE) Tunable Spaces Resembles Sessocias | L5: 12 | 0 f | 72 |
| US PAT 23 OCT | NO: 92 10:46 | 5,052,806 [IMAGE AVAILABLE] 6:01 U.S. Patent & Trademark C | L5: 13 Office | of | PØØ161 |
| US PAT | NO: | 5,052,806 [IMAGE AVAILABLE] Apparatus for measuring non-absorptive s | L5: 13 scatter | of | 72 |
| US PAT TITLE: | | 5,047,668 [IMAGE AVAILABLE] Optical walkoff compensation in critical three-wave frequency conversion system | lly pha | of se-m | 72 atched |
| US PAT | NO: | 5,043,306 [IMAGE AVAILABLE] Catalysts for upgrading light paraffins | 15: 15 | of | |
| US FAT | | 5,034,951 CIMAGE AVAILABLE: Femtosecond ultraviolet laser using :ultr borate | | | |
| | | 5,033,057 CIMAGE AVAILABLE: 5:12 U.S. Patent % Trademark C | | | 72 P0017 |
| US PAT TITLE: | | 5,033,057 [IMAGE AVAILABLE] Pump steering mirror cavity | L5: 17 | σf | 72 |

one such another involves the site of the literated water DTO from sources such as deuterium-bearing molecule XYD with tritiated water DTO from sources such as a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4.032,419 CIMAGE AVAILABLEI L8: 2 of 2

23 OCT 92 10:44:37 U.S. Patent & Trademark Office

PØØ11

US PAT NO: 4,032,419 [IMAGE AVAILABLE] LS: 2 of 2

ABSTRACT:

:::: `:

A uranium compound in the solid phase (uranium borohydrida four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined fraquency which causes the excited uranium-235 isotope-bearing molecules to Chemically decompose but which does not affect the uranium-238 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules. The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path 23 OCT 92 10:44:50 U.S. Patent & Trademark Office P0012

US PAT NO: 4,032,419 [IMAGE AVAILABLE] LB: 2 of 2 tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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graph of the Santa Committee and a Santa Control of the same and the s

ABSTRACT:

Methods for laser-assisted isotope separation of tritium. using infrared multiple photon dissociation of tritium-bearing products in the gas phase. One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTC from sources such as 23 OCT 92 10:42:54

U.S. Patent & Trademark Office

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L7: 1 of 2 a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO:

4,032,419 [IMAGE AVAILABLE]

L7: 2 of 2

ABSTRACT:

A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238 23 OCT 72 10:43:07 U.S. Patent & Tradamark Office P0008

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules. The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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(FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)
23 OCT 92 10:43:31 U.S. Patent & Trademark Office
               SET PAGELENGTH 19
               SET LINELENGTH 78
1_1
             Ø S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
12
            49 S OPTICAL PARAMETRIC OSCILLATOR
L3
           302 S (L2 OR METHANE(W) CONVERSION)
            Ø S L2 AND METHANE CONVERSION
1.4
1.5
            72 S (L2 OR ETHANE(W) PRODUCTION)
            Ø S L2_AND ETHANE PRODUCTION
L7
             2 S L2 AND 204*?/CCLS
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391Ø4 2Ø4*?/CCLS (2Ø4/?/CCLS) LB 2 L5 AND 2Ø4*?/CCLS

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23 OCT 92 10:44:26

 \Rightarrow s 15 and 204*?/ccls

U.S. Patent & Trademark Office

PØØ10

P0009

US PAT NO:

4,411,755 CIMAGE AVAILABLE]

LS: 1 of 2

ABSTRACT:

Methods for laser-assisted isotope separation of tritium, using infrared

R. J. Guenther

Arthur J. Torsiglieri

23 OCT 92 11:46:39 U.S. Patent & Trademark Office PØØØ5

=> d acc leg 5117126

5,117,126 [IMAGE AVAILABLE] US PAT NO: ANS: 1

DATE ISSUED: May 26, 1992 TITLE: Stacked optical parametric oscillator

Allen R. Geiger, Las Cruces, NM INVENTOR:

Allen K. belger, Las Cruces, NM (U.S. corp.)

Ø7/544,597

Jun. 27, 199Ø ASSIGNEE:

APPL-NO: DATE FILED:

ART-UNIT: 251

Georgia Epps PRIM-EXMR:

LEGAL-REP: Georgia Epps LEGAL-REP: Kramer, Brufsky & Cifelli

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23 OCT 92 11:45:37

U.S. Patent & Trademark Office

PØØØ3

US PAT NO: 4,433,193 DATE ISSUED: Feb. 21, 1984

ANS: 1

ANS: 1

TITLE:

Process for the production of ethane

INVENTOR:

Paul E. Koppel, Lexington, MA Joseph J. Williams, Sudbury, MA Herman N. Woebcke, Stamford, CT

ASSIGNEE: Stone & Webster Engineering Corp., Boston, MA (U.S. corp.)
APPL-NO: Ø6/312,157
DATE FILED: Oct. 16, 1981
ART-UNIT: 116
PRIM-EXMR: Delbert E. Gantz
ASST-EXMR: Lance Johnson

LEGAL-REP: Hedman, Gibson, Cassella, Gibson & Costigan

23 OCT 92 11:45:44

U.S. Patent & Trademark Office

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=> d acc leg 3617936

US PAT NO: 3,617,936

DATE ISSUED: Nov. 2, 1971 TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY

RADIATION INJECTION

RADIATION INJECTION
INVENTOR: John E. Bjorkholm, Middletown, NJ
ASSIGNEE: Bell Telephone Laboratories, Incorporated, Murray Hill, NJ
APPL-NO: Ø4/827,7Ø8
DATE FILED: May 26, 1969

ART-UNIT:

252

PRIM-EXMR: Roy Lake
ASST-EXMR: Darwin R. Hostetter
LEGAL-REP: R. J. Guenther

Arthur J. Torsiglieri

23 OCT 92 11:46:39

U.S. Patent & Trademark Office

PØØØ5

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MESSAGE:

Hold/Resume Clear Output Input Ref Continuous Print Page/Scroll LEGAL-REP: R. J. Guenther
Arthur J. Torsiglieri

23 OCT 92 11:46:39

U.S. Patent & Trademark Office

PØØ**Ø**5

=> d acc leg 5117126

US PAT NO: 5,117,126 [IMAGE AVAILABLE] - ANS: 1

DATE ISSUED: May 26, 1992

TITLE: Stacked optical parametric oscillator

INVENTOR: Allen R. Geiger, Las Cruces, NM

ASSIGNEE: La Sen, Inc., Las Cruces, NM (U.S. corp.)

APPL-NO: Ø7/544,597 DATE FILED: Jun. 27, 1990

ART-UNIT: 251

PRIM-EXMR: Georgia Epps

LEGAL-REP: Kramer, Brufsky & Cifelli

INFUT:

23 OCT- 92 11:45:37

U.S. Patent & Trademark Office

US PAT NO:

4,433,193

ANS: 1

ANS: 1

DATE ISSUED:

Feb. 21, 1984

TITLE:

Process for the production of ethane

INVENTOR:

Paul E. Koppel, Lexington, MA Joseph J. Williams, Sudbury, MA

Herman N. Woebcke, Stamford, CT

ASSIGNEE:

Stone & Webster Engineering Corp., Boston, MA (U.S. corp.)

APPL-NO:

 \emptyset 6/312,157 Oct. 16, 1981

DATE FILED: ART-UNIT:

116

PRIM-EXMR:

Delbert E. Gantz Lance Johnson

ASST-EXMR: LEGAL-REP:

Hedman, Gibson, Cassella, Gibson & Costigan

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23 OCT 92 11:45:44

U.S. Patent & Trademark Office

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=> d acc leg~ 3617936

US PAT NO:

୍ଞ, 617**,** 936ା

DATE ISSUED: TITLE:

Nov. 2, 1971

FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY

RADIATION INJECTION

INVENTOR: John E. Bjorkholm, Middletown, NJ

ASSIGNEE:

Bell Telephone Laboratories, Incorporated, Murray Hill, NJ

APPL-NO:

. Ø4/827,7Ø8

DATE FILED: ART-UNIT:

May 26, 1969 252

PRIM-EXMR:

Roy Lake

ASST-EXMR: Darwin R.- Hostetter

LEGAL-REP:

R. J. Guenther

Arthur J. Torsiglieri

23 OCT 92 11:46:39 U.S. Patent & Trademark Office

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